

# Nanomedicine and nanotoxicology: the pros and cons for neurodegeneration and brain cancer

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## Resumen

Current strategies for brain diseases are mostly symptomatic and noncurative. Nanotechnology has the potential to facilitate the transport of drugs across the blood-brain barrier and to enhance their pharmacokinetic profile. However, to reach clinical application, an understanding of nanoneurotoxicity in terms of oxidative stress and inflammation is required. Emerging evidence has also shown that nanoparticles have the ability to alter autophagy, which can induce inflammation and oxidative stress, or vice versa. These effects may increase neurodegenerative processes damage, but on the other hand, they may have benefits for brain cancer therapies. In this review, we emphasize how nanomaterials may induce neurotoxic effects focusing on neurodegeneration, and how these effects could be exploited toward brain cancer treatment.

## Palabras clave

**Palabras clave de autor:** autophagy; brain; cancer; drug

delivery; nanomedicine; nanotoxicology; neurodegeneration; oxidative stress

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